

Claims:

- 1 1. A passenger safety interface circuit comprising:
2 a current mirror circuit having first and second current paths,
3 a seatbelt latch sensor circuit in said second current path,
4 a current sensing circuit in said first current path, said first current in said first current
5 path mirroring the current in said second current path, and
6 a control microprocessor circuit responsive to the current in said first current path for
7 controlling the activation of a passenger safety system.
- 1 2. The passenger safety interface circuit as set forth in Claim 1 wherein said current mirror
2 circuit includes first and second matching transistors, said first transistor included in said first
3 current path and said second transistor included in said second current path.
- 1 3. The passenger safety interface circuit as set forth in Claim 2 further including a control
2 transistor coupled between said second matching transistor and said seatbelt latch sensor for
3 controlling the current to said seatbelt latch sensor circuit in response to a signal from said
4 control microprocessor circuit.
- 1 4. The passenger safety interface circuit as set forth in Claim 3 further including a first
2 current sense resistor in said first current path between the first matching transistor and ground
3 potential, the voltage across said resistor being proportional to the current through said seatbelt
4 latch sensor circuit and providing the input signal to the control microprocessor circuit.
- 1 5. The passenger safety interface circuit as set forth in Claim 4 wherein said control
2 microprocessor circuit includes outputs to control the operation of a vehicle airbag system and/or
3 a vehicle seatbelt tensioner system.
- 1 6. The passenger safety interface circuit as set forth in Claim 5 further including at least a
2 second seatbelt sensor circuit in parallel connection to said first mentioned seatbelt latch sensor
3 circuit, and
4 at least a second control transistor coupled between said second matching transistor and

5 said second seatbelt latch sensor circuit for controlling the current through said second seatbelt
6 latch sensor circuit in response to a signal from said control microprocessor circuit.

1 7. The passenger safety interface circuit as set forth in Claim 6 wherein the current
2 in said first current path mirrors the current in the second current path, said second current path
3 including the current in said first seatbelt latch sensor circuit and at least said second seatbelt
4 latch sensor circuit.

1 8. The passenger safety interface circuit as set forth in Claim 7 wherein the current through
2 said first current path is detected by said control microprocessor circuit in discrete values, said
3 discrete values indicating that neither seatbelt is latched, only said first seatbelt is latched, only a
4 second seatbelt is latched, or that both seatbelts are latched.

1 9. A method of monitoring the status of passenger vehicle seatbelt latches comprising:
2 providing a current mirror circuit with first and second current paths,
3 controlling the current flow in said second current path by a control microprocessor
4 circuit,
5 monitoring the status of the seatbelt latches by providing a seatbelt latch sensor circuit,
6 measuring the current in said first current path, said current in said first current path
7 mirroring the current flow in said second current path,
8 applying the measured current to the control microprocessor circuit to provide the status
9 of the seatbelt latches to the microprocessor circuit, and
10 providing an output path from said microprocessor circuit to a vehicle airbag system
11 and/or a vehicle seatbelt tensioner system to fire or not to fire depending on the status of the
12 seatbelt latches in the event of a detected collision or sudden deceleration.

1 10. A method of monitoring the status of passenger seatbelt latches comprising:
2 providing a current mirror circuit with first and second current paths, said passenger
3 seatbelt latches being included in the second current path,
4 mirroring the current in said second current path in said first current path,
5 measuring the current in said first current path,
6 applying the measured current to a control microprocessor circuit, and

7 controlling the activation of a vehicle airbag system and/or a vehicle seatbelt tensioner
8 system to enable or disable firing depending on the status of the seatbelt latches in the event of a
9 detected collision or sudden deceleration.

1 11. The method as set forth in claim 10 further including the step of:

2 providing at least a second passenger seatbelt latch connected in parallel in said second
3 current path; and wherein:

4 said step of measuring the current in said first current path includes activating the
5 corresponding control transistor to allow current flow through the selected seatbelt latch sensor.

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